

United States Environmental Protection Agency (USEPA)

Community Meeting

Radiological Studies at Santa Susana Field Laboratory (SSFL)

July 15, 2009



Agenda

- 1. Introduction of EPA Staff**
- 2. EPA's Role at the Santa Susana Field Laboratory (SSFL)**
- 3. EPA's Two Studies for SSFL**
 - Radiological Background Study**
 - Area IV Radiological Study**
- 4. Schedule and Next Steps for Both Studies**
- 5. Upcoming Meetings**



US EPA Santa Susana Field Lab Technical Team

US EPA

Nicole Moutoux, Project Manager, San Francisco

Craig Cooper, Project Manager, San Francisco

Mary Aycok, Project Manager, San Francisco

Gregg Dempsey, Senior Science Advisor, Las Vegas

US EPA Contractors

Eric Evans, Project Manager, Hydrogeologic, Inc.

Carl Palladino, Radiological Specialist, The Palladino Company, Inc.



EPA' s Role at SSFL

- EPA is responsible for the completion of a radiological background study and a radiological study in SSFL Area IV
- State of California Department of Toxic Substances Control is responsible for regulating and certifying the overall clean-up of SSFL



Background Radiological Study



Radiological Background Study Objectives

- The purpose of the Background Study is to determine the level of “ambient or background” radioactivity found in soil.
- The results of the Background Study will be compared to radiological data collected at the SSFL to determine the extent of radiological contamination.



Status of Radiological Background Study

- ✓ Initial project planning
- ✓ Background location evaluation and selection
- ✓ Sampling Plan preparation
- Sampling preparation and mobilization
 - Access agreements
 - Subcontracting
 - Location preparation
- Sampling (August 2009)
- Laboratory analyses
- Data validation, evaluation, and statistical analysis
- Report preparation

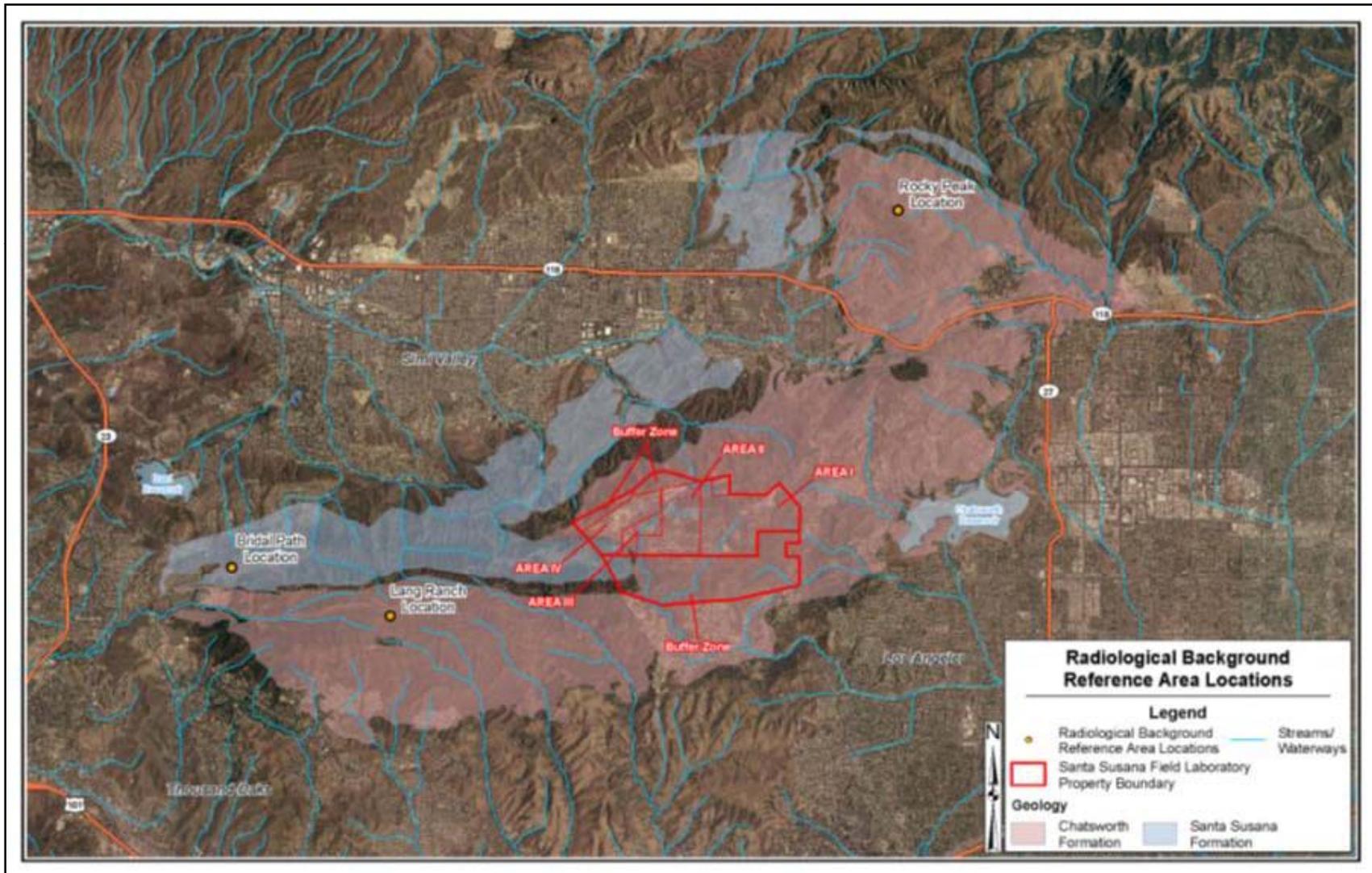


Location Evaluation and Selection

- Conducted with considerable assistance from community members
- Initially, over 200 locations in seven general areas were identified and considered
- Eleven locations were evaluated
- Three locations were selected for background sampling

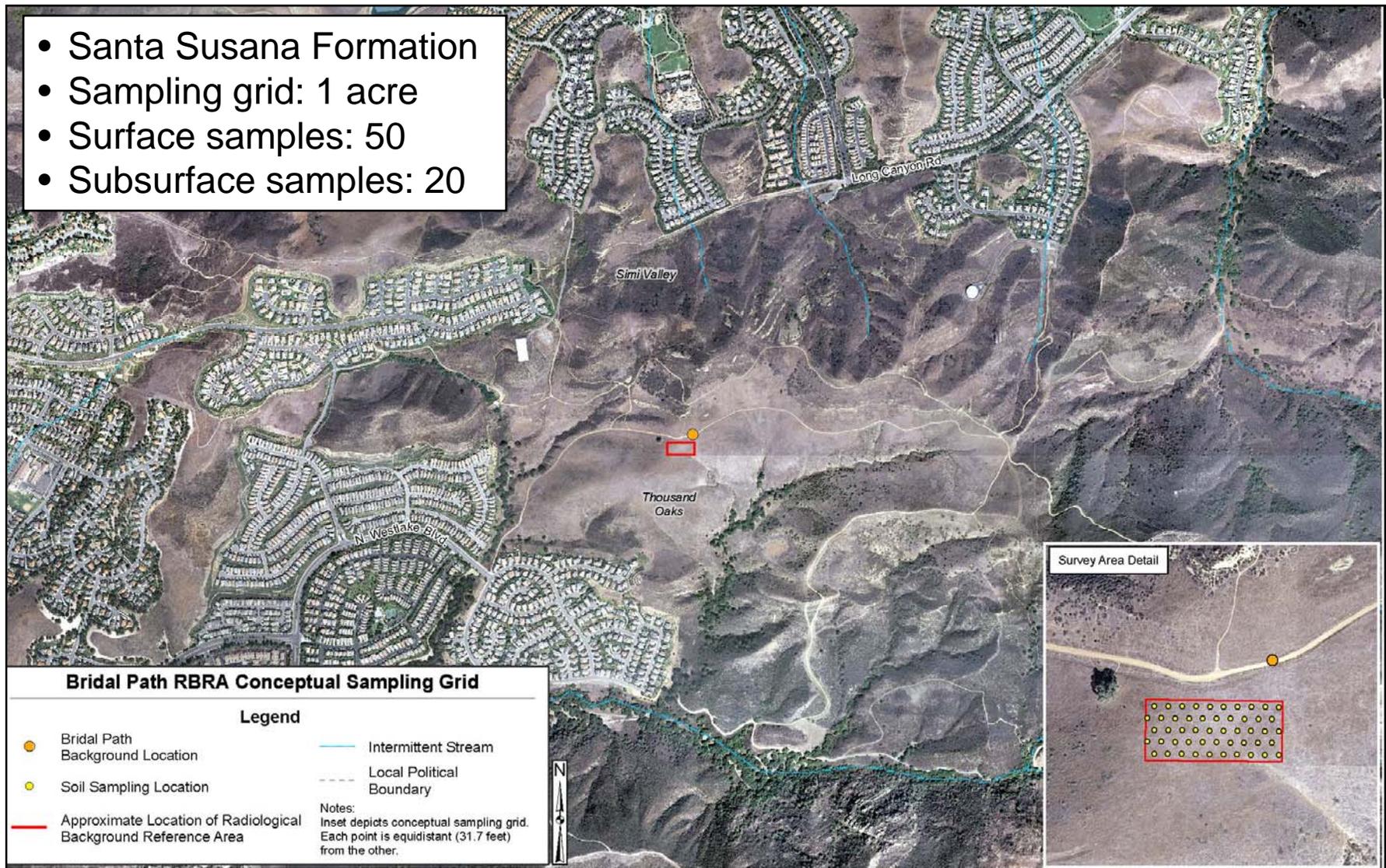


Radiological Background Reference Areas



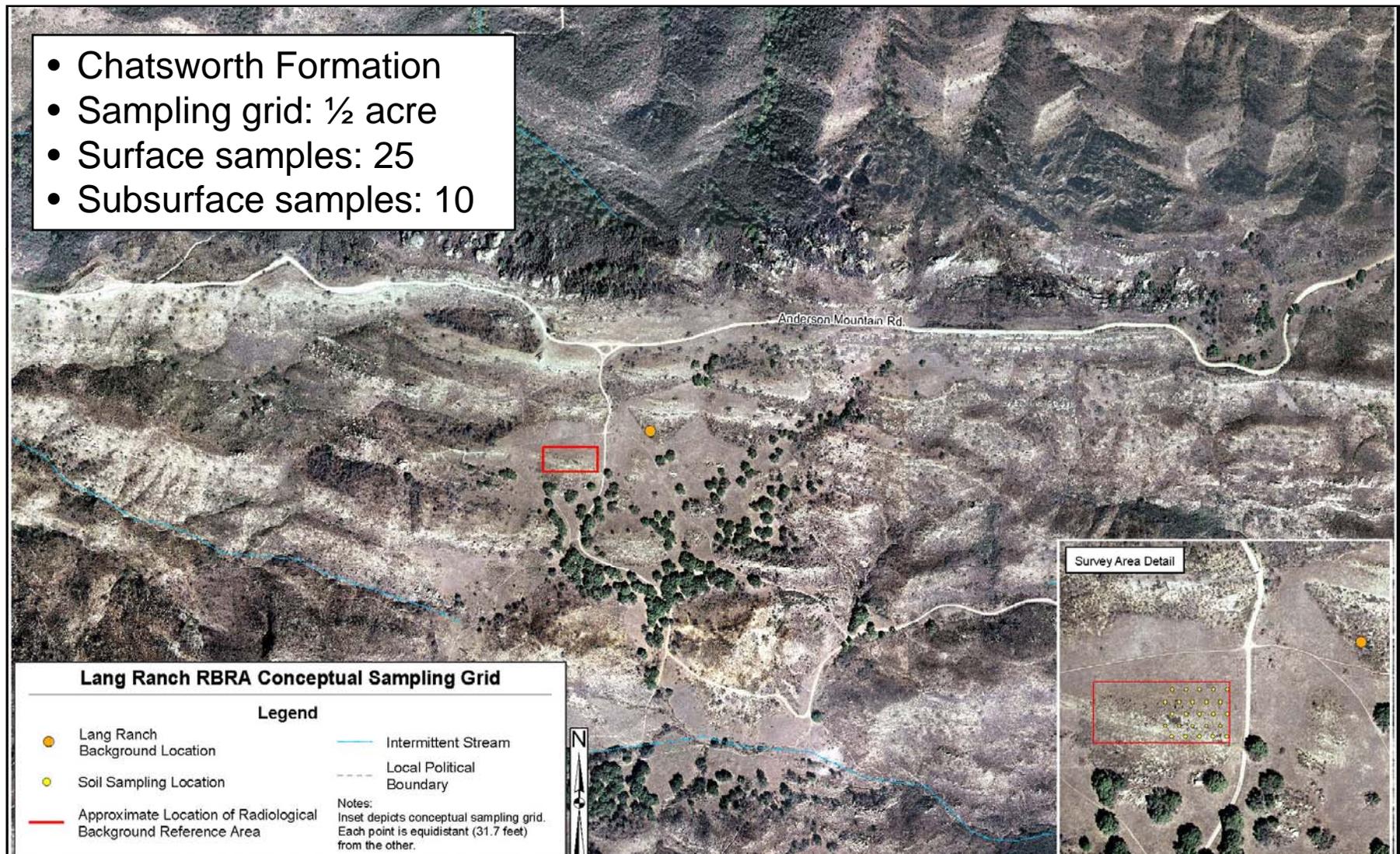
Bridal Path Radiological Background Reference Area

- Santa Susana Formation
- Sampling grid: 1 acre
- Surface samples: 50
- Subsurface samples: 20



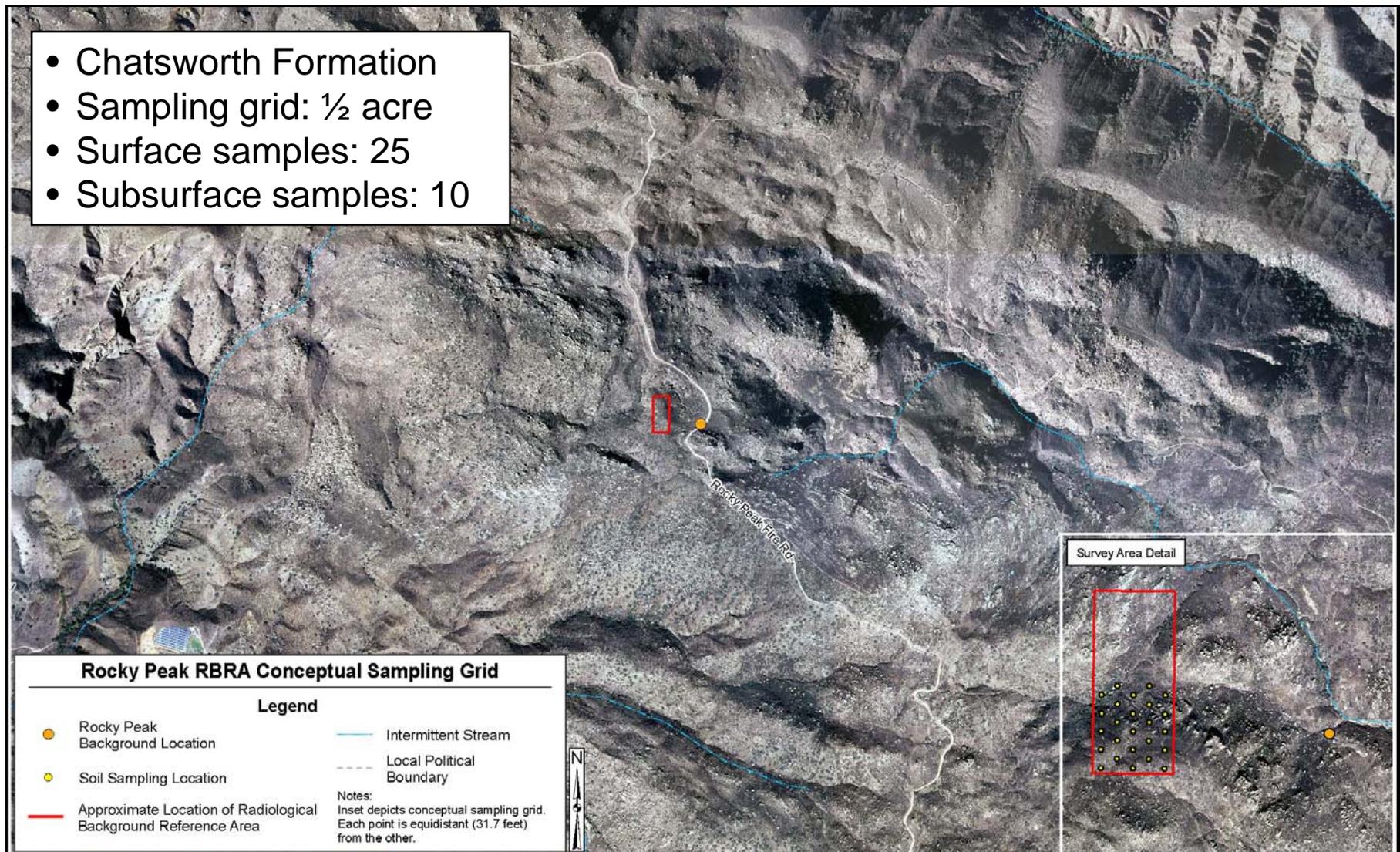
Lang Ranch Radiological Background Reference Area

- Chatsworth Formation
- Sampling grid: ½ acre
- Surface samples: 25
- Subsurface samples: 10



Rocky Peak Radiological Background Reference Area

- Chatsworth Formation
- Sampling grid: ½ acre
- Surface samples: 25
- Subsurface samples: 10

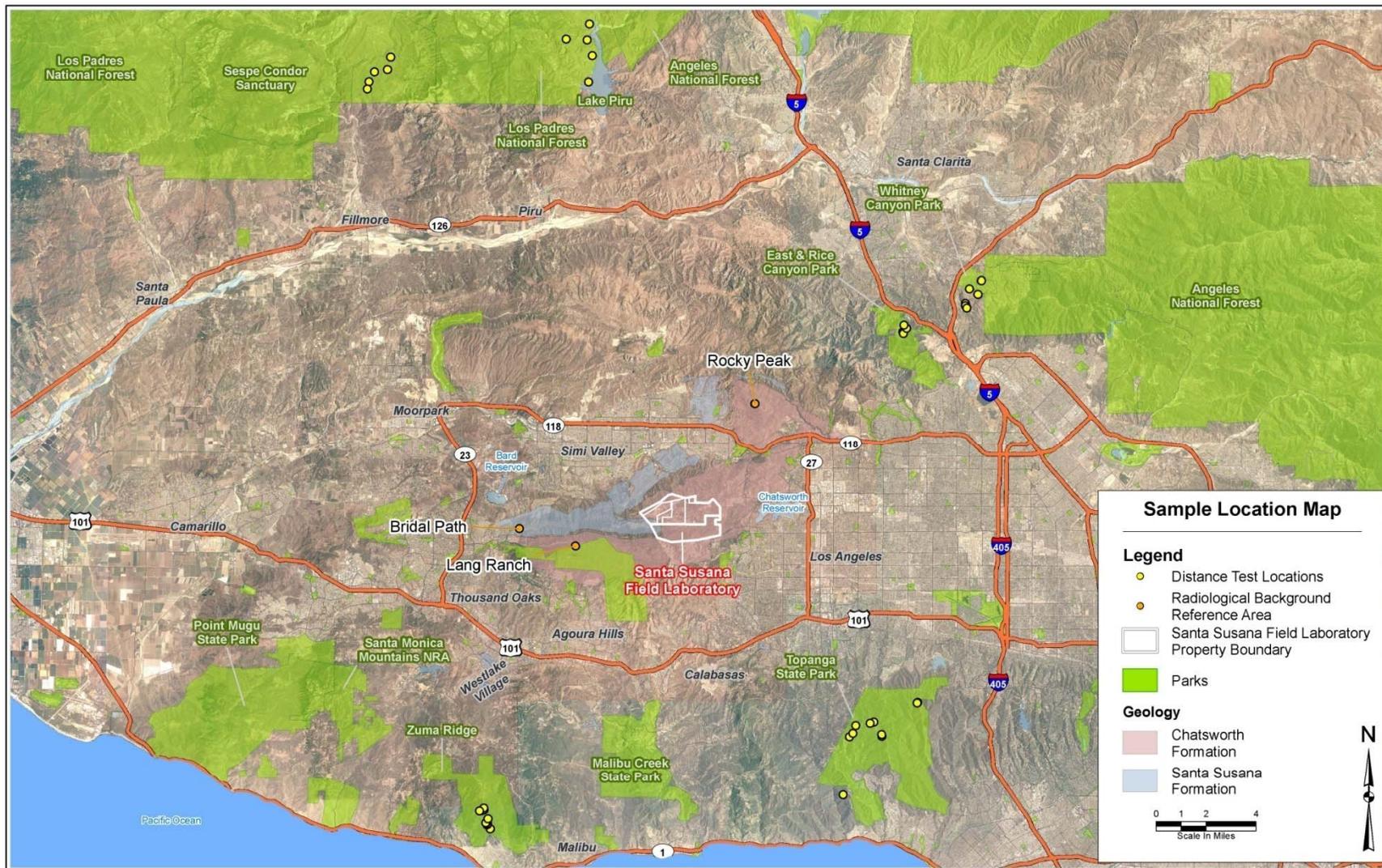


Distance Test Locations

- Address concern that the three background locations are too close to SSFL
- Test 20 surface soil samples at distances at least 10 miles from SSFL
- Compare sampling results to ensure that the three background locations were not contaminated by the SSFL



Distance Test Locations



Radionuclides of Interest

- Naturally occurring radionuclides (e.g., U-238, U-235, Th-232, etc.)
- Radionuclides found in fallout (e.g., Cs-137, Sr-90, etc.)

Produced at SSFL

- Radionuclides found in nuclear fuel (e.g., Pu-238, U-235, etc.)
- Fission Products (e.g., Cs-137, Sr-90, etc.)
- Activation Products (e.g., U-233, Eu-152, Co-60, etc.)



Laboratory Selection

- Select lab(s) that will achieve low detection limits and provide quality data
- Detection limit: the lowest concentration of a substance that can be measured in a laboratory within a specific certainty



Data Evaluation

- Ensure laboratory data quality
- Apply statistical methods to help us understand and use the data
- Calculate a background value for each radionuclide



Sampling Observation

- Opportunities for observing the field work in August
- Contact Nicole Moutoux – (415) 972-3012

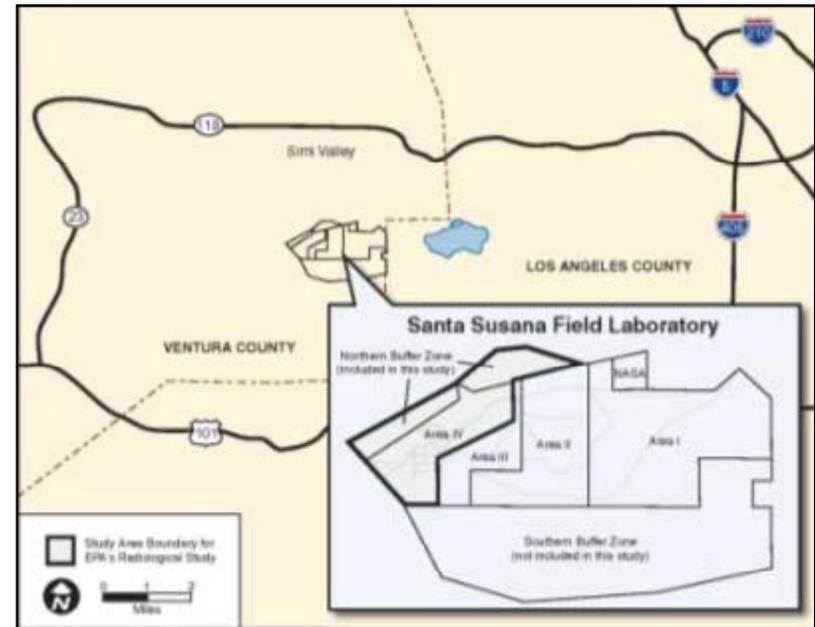


Area IV Radiological Study



Project Summary

- Goal: Determine the extent of radiological contamination associated with Area IV.
- Activities:
 - Historical Site Assessment
 - Gamma scanning surveys
 - Sampling and analysis
 - Data evaluation and reporting



Project Budget

Phase	Budget
Background Study	\$1.5M
Area IV Study	\$40M
Total	\$41.5M



Historical Site Assessment Objectives

- Determine the complete list of potential radiological contaminants associated with SSFL.
- Identify locations where the releases may have occurred (e.g., spills, dump sites, pipeline leaks, storage areas, etc.).



Historical Site Assessment Approach

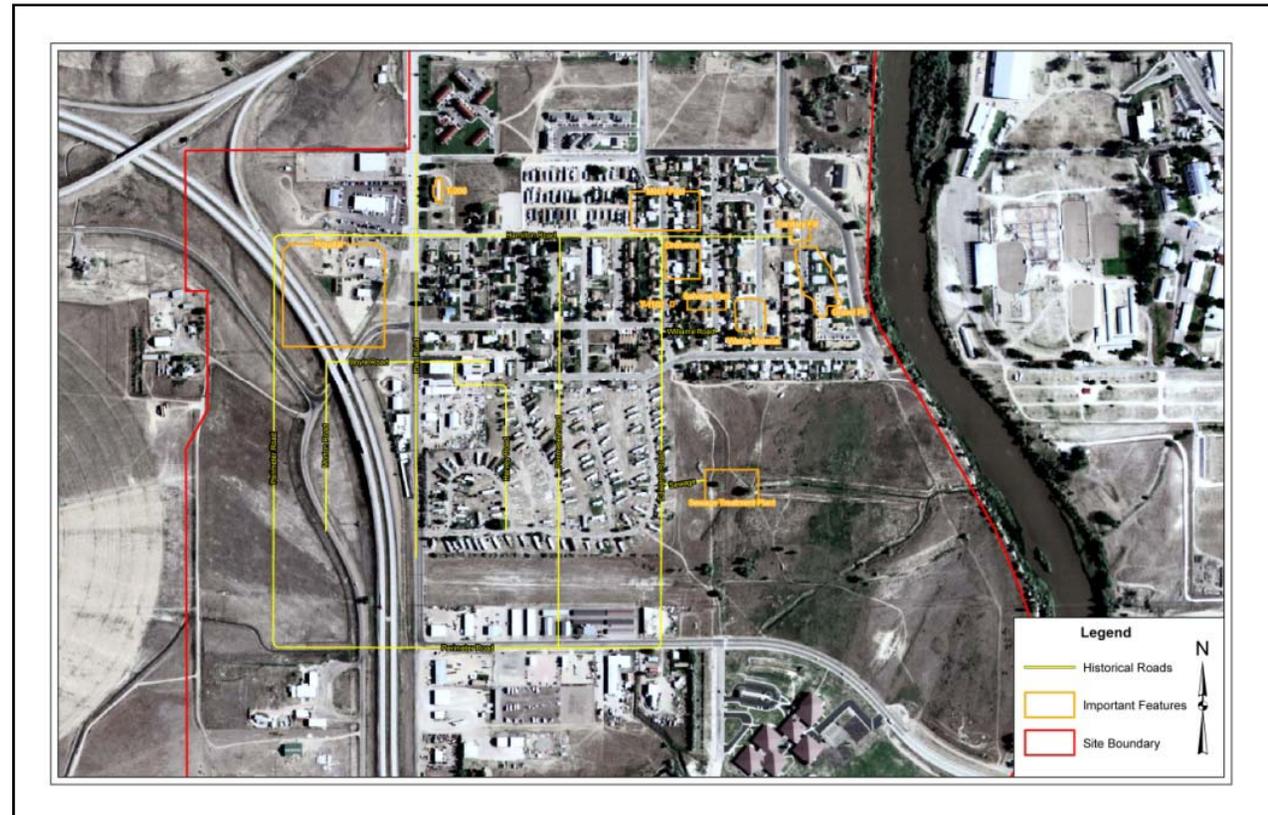
- Information Request Letters to the Department of Energy (DOE) and Boeing
- Aerial Photo Analysis
- Former Employee Interviews
- Review Documents/Records



Aerial Photo Analysis

- Aerial Analysis Objective

- To identify historical operational changes over time.
- To identify potential contaminant source areas.



Former Employee Interviews

- EPA will host information sessions and conduct interviews
- Individual interviews will be conducted with the assistance of Gregg Dempsey (EPA)
- For more information, contact Andrew Taylor (EPA Civil Investigator) at 415-972-3129



Document Review

- EPA radiological experts and historians review, compile, and report on critical information associated with past radiological operations
- Examples include logbooks, operations manuals, incident reports, waste manifests, etc.



Historical Site Assessment Schedule

Activity	Schedule
Information Request Letters	Done (June 24, 2009)
Aerial Photos	Ongoing (as of July 15, 2009)
Former Employee Interviews	July and August 2009
Document Review	Ongoing (as of July 15, 2009)
Draft EPA HSA Report	July 2010
Final EPA HSA Report	September 2010



Area IV Gamma Survey

Q: What is gamma radiation?

A: High energy photons emitted from radionuclides (similar to X-rays)

Q: Why does EPA first scan for gamma?

A: Gives us quick information (daily) on potential contamination in surface soil

A: Helps focus soil sampling and analysis activities on potentially contaminated areas



Area IV Gamma Survey

Q: What will the gamma scan tell us?

A: Approximate levels of potential contamination for detected radionuclides

A: Location of potential surface soil contamination for detected radionuclides

A: Preliminary identification of detected radionuclides



Area IV Gamma Survey

Q: What will gamma scanning not tell us?

A: Deep subsurface soil contamination

A: Radionuclides that only emit alpha or beta radiation or low energy gamma

A: Detection levels will not be as low as the levels that can be detected in the laboratory



Challenges to Area IV Gamma Survey

- Rugged terrain
- Dense vegetation and obstacles
- Poisonous snakes and plants
- Endangered plant and animal species
- Cannot scan when soil is wet
- Need to detect low levels of gamma radiation
- Some buildings still exist



Gamma Scanning Technologies

Enhanced Radiological Scanning System (ERGS)

- High detection sensitivity
- Used on relatively flat terrain



Borehole Gamma Logger

- Low detection sensitivity
- Used in boreholes



Hand-Held Gamma Scanner

- Low detection sensitivity
- Used in rough terrain



Burro-Carried Gamma Scanning System

- A burro-carried system with moderate detection sensitivity
- System could scan rough terrain with minimal environmental disturbance.

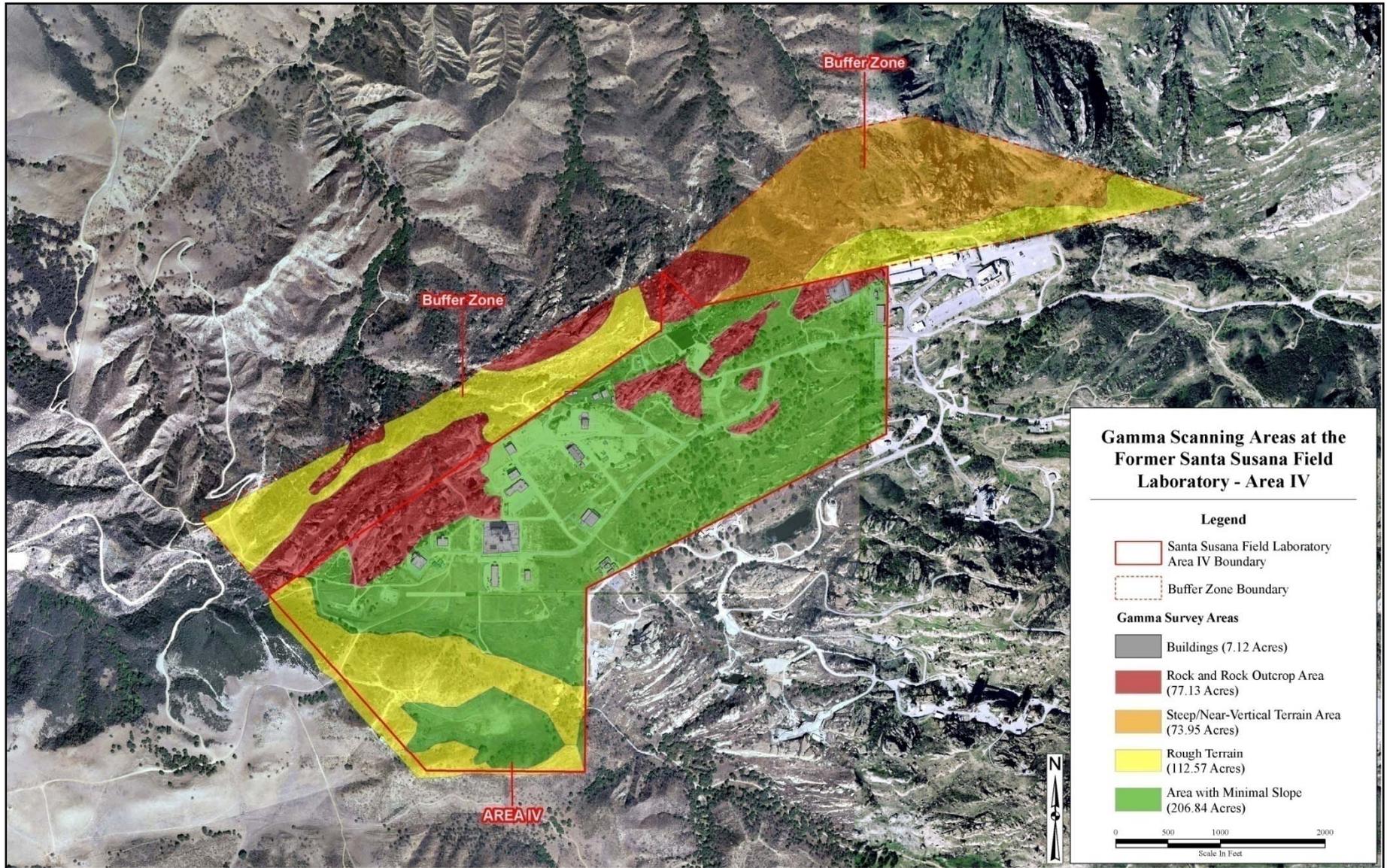


Wheeled Gamma Scanner

- Low to moderate detection sensitivity
- Used on moderately rough terrain

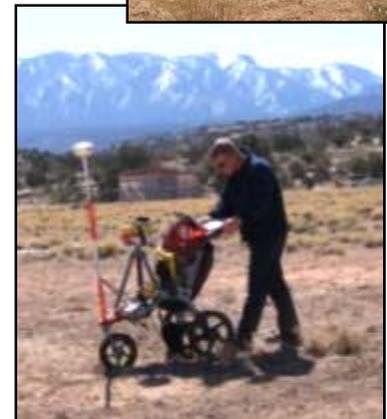


Zones Based on Accessibility



Area IV Radiological Study Approach

- Hire and form EPA gamma scanning team
- Break study area into zones based on accessibility
- Identify and match best available scanning technology options for each zone
- Develop draft work plan
- Establish EPA field office on-site at SSFL
- Mobilize and start scanning before end of 2009



Overall Project Schedule

Activity	Tentative Schedule
Radiological Background Study Testing	August 2009
Radiological Background Study Report	January 2010
Historical Site Assessment Report	September 2010
Gamma Scan Survey (Area IV) Report	November 2010
Soil, Surface Water, Sediment and Groundwater Testing (Area IV)	Spring 2010 to Summer 2011
Area IV Data Report	September 2011



Upcoming Meeting and Community Activities

- Inter-Agency Community Work Group Meeting – July 29 and October 22
- Next EPA Community Meeting – December 2009



EPA Web Site

www.epa.gov/region09/SantaSusana



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